

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
Re: Appeal to the Board of Patent Appeals and Interferences

Appellants:	Wu et al.	)	Examiner:	Ernst V. Arnold
)		
Serial Number:	10/686,937	)	Group Art Unit:	1616
)		
Filed:	October 16, 2003	)	Customer Number:	22827
)		
Confirmation No:	4594	)	Deposit Account:	04-1403
)		
Title:	Method for Reducing Odor Using	)	Attorney Docket No:	KCX-692 (19490)
	Coordinated Polydentate)		
	Compounds)		

1. ☐ **NOTICE OF APPEAL:** Pursuant to 37 CFR 41.31, Applicant hereby appeals to the Board of Appeals and interferences from the last decision of the Examiner.
2. ☐ **PRE-APPEAL BRIEF REQUEST FOR REVIEW:** Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request. This request is being filed with a Notice of Appeal. The review is requested for the reason(s) stated on the attached sheet(s) [No more than five (5) pages may be provided.]
3. ☒ **BRIEF** on appeal in this application pursuant to 37 CFR 41.37 is transmitted herewith (1 copy).
4. ☐ An **ORAL HEARING** is respectfully requested under 37 CFR 41.47 (due within two months after Examiner's Answer).
5. ☐ Reply Brief under 37 CFR 41.41(b) is transmitted herewith (1 copy).
6. ☐ "Small entity" verified statement filed: [] herewith [] previously.

7. **FEE CALCULATION:**

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PETITION is hereby made to extend the original due date of October 25, 2009, hereby made for an extension to cover the date this response is filed for which the requisite fee is enclosed (1 month \$130; 2 months \$490; 3 months \$1,110; 4 months \$1,730, 5 months \$2,350) \$ 0.00

SUBTOTAL: \$ 540.00

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Less any previous fee paid for prior Notice of Appeal since Board did not render a decision on the merits. MPEP § 1204.01 - \$ 0.00

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Board did not render a decision on the merits. MPEP § 1204.01 - \$ 0.00

SUBTOTAL: \$ 540.00

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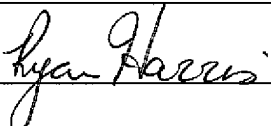
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DORITY & MANNING ATTORNEYS AT LAW, P.A.

ADDRESS:

Post Office Box 1449
Greenville, SC 29602 USA
Customer ID No.: 22827
Telephone: (864) 271-1592
Facsimile: (864) 233-7342

By: Ryan P. Harris Reg. No: 58,662

Signature: 

Date: October 26, 2009

I hereby certify that this correspondence and all attachments and any fee(s) are being electronically transmitted via the internet to the U.S. Patent and Trademark Office using the Electronic Patent Filing System on October 26, 2009.

Sandra S. Perkins

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(Signature of person transmitting documents)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application of: Wu et al.	)	Examiner: Ernst V. Arnold
)	
Serial No: 10/686,937	)	Group Art Unit: 1616
)	
Filed: October 16, 2003	)	Confirmation No: 4594
)	
Title Method for Reducing Odor	)	Deposit Account No: 04-1403
Using Coordinated Polydentate)	
Compounds	)	Customer No: 22827

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

BRIEF ON APPEAL

Appellants submit the following brief on appeal in accordance with 37 C.F.R. §
41.37:

1. REAL PARTY IN INTEREST

The real party in interest in this matter is the assignee of record, Kimberly-Clark
Worldwide, Inc.

2. RELATED APPEALS AND INTERFERENCES

There are no other appeals or interferences known to the Appellants or the
Appellants' legal representative which will directly affect or be directly affected by or
have a bearing on the Board's decision in the pending appeal.

3. STATUS OF CLAIMS

Currently, claims 1, 2, 4, 5, 7, 9-23, and 25-30 remain pending in the present
application including independent claims 1 and 22. Claims 3, 6, 8, 24, and 31-60 were

previously cancelled from the present application. All pending claims are attached hereto in the Claims Appendix.

In the Final Office Action of April 22, 2009, claims 1, 2, 4, 5, 7, 9-23, and 25-30 were finally rejected under 35 U.S.C. § 103(a).

The rejection of claims 1, 2, 4, 5, 7, 9-23, and 25-30 under §103(a) is hereby appealed.

4. STATUS OF AMENDMENTS

All Amendments have been entered.

5. SUMMARY OF CLAIMED SUBJECT MATTER

In general, the present application is directed to a method for reducing odor. See, e.g., Title. For example, independent claim 1 is directed to a method for reducing odor comprising forming a coordination complex between a transition metal and a polydentate compound wherein the polydentate compound is a polyalkylimine. See, e.g., pg. 1, lines 20-25; pg. 2, lines 1-3, lines 8-10, and lines 15-18; pg. 2, line 33 – pg. 3, line 1; pg. 5, lines 12-20; pg. 7, line 21 – pg. 8, line 15. The method further comprises crosslinking the polydentate compound rendering the polydentate compound substantially water-insoluble. See, e.g., pg. 2, lines 3-7; pg. 9, line 1 – pg. 12, line 3. The method additionally requires contacting the coordination complex with an odorous compound so that the one or more active sites of the transition metal capture the odorous compound. See, e.g., pg. 1, lines 21-25; pg. 2, lines 13-14 and lines 20-21; pg. 4, line 31 – pg. 5, line 11; pg. 12, lines 4-12.

Independent claim 22 is directed to a method for reducing odor comprising forming a coordination complex between a transition metal and a polyalkylimine. See,

e.g., pg. 1, lines 20-25; pg. 2, lines 1-3, lines 8-10, and lines 15-18; pg. 2, line 33 – pg. 3, line 1; pg. 5, lines 12-20; pg. 7, line 21 – pg. 8, line 15. The transition metal is selected from the group consisting of scandium, titanium, vanadium, chromium, manganese, iron, cobalt, nickel, copper, zinc, silver, gold, and combinations thereof. See, e.g., pg. 1, lines 26-29; pg. 2, lines 10-13 and lines 18-21; pg. 4, lines 28-30. The method further comprises crosslinking the polyalkylimine rendering the polyalkylimine substantially water-insoluble. See, e.g., pg. 2, lines 3-7; pg. 9, line 1 – pg. 12, line 3. The method additionally comprises applying the coordination complex to a substrate that comprises cellulosic fibers. See, e.g., pg. 1, lines 31-32; pg. 2, lines 15-28; pg. 6, line 32 – pg. 7, line 10; pg. 8, line 6 – pg. 9, line 3. The method further comprises contacting the substrate with an odorous compound so that the one or more active sites of the transition metal capture the odorous compound. See, e.g., pg. 1, lines 21-25; pg. 2, lines 13-14 and lines 20-21; pg. 4, line 31 – pg. 5, line 11; pg. 12, lines 4-12.

6. GROUND OF REJECTION TO BE REVIEWED ON APPEAL

I. Claims 1, 2, 4, 5, 7, 9-23, and 25-30 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Abstract of JP 04290547¹ (hereinafter “JP ‘547”) in view of *J. Polym. Sci. Polym. Chem. Ed.* 1985, vol. 23, pg. 2875-2878 (hereinafter “Takagishi”) and with respect to claims 17-20 and 25, European Patent App. EP 1214878 (hereinafter “Stoddart”) and, with respect to claims 9-12, U.S. Patent No. 4,275,054 (hereinafter “Sebag”) and, with respect to claims 13-16 and 26-28, U.S. Patent No. 5,120,693 (hereinafter “Connolly”).

¹ Machine translation provided as DERWENT-ACC-NO: 1992-39312

7. ARGUMENT

Appellants respectfully submit that the presently pending claims are patentable over the cited references and rejections.

I. **Claims 1, 2, 4, 5, 7, 9-23, and 25-30 are patentable over JP '547 in view of Takagishi, Stoddart, Sebag, and Connolly.**

JP '547 is directed to a deodorant that comprises a silicic acid gel structure containing a metal salt. Bentonite and a complex of isobutene-maleic anhydride copolymer and polyethyleneimine may be added to the gel after formation of the gel structure. Since the metal salts are enclosed in the vitreous structure of silicic acid gels, the deodorant is safe even when touch humans and animals directly.

Takagishi is directed to adsorbing metal ions in water utilizing PEI. As disclosed in Takagishi, the PEI is crosslinked to make the polymer insoluble in water. This allows the PEI to adsorb metal ions out of solution.

A. **Independent claim 1 is patentable over JP '547 in view of Takagishi.**

Independent claim 1 recites:

A method for reducing odor, said method comprising:
forming a coordination complex between a transition metal and a polydentate compound wherein said polydentate compound is a polyalkylimine;
crosslinking said polydentate compound, wherein said crosslinking renders said polydentate compound substantially water-insoluble; and
contacting said coordination complex with an odorous compound so that the one or more active sites of the transition metal capture the odorous compound.

1. JP '547 and Takagishi fail to teach forming a coordination complex between a transition metal and a polydentate compound.

To establish a *prima facie* case of obviousness, in addition to other requirements, the prior art references when combined must teach or suggest all the claim limitations. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). As noted above, independent claim 1 contains the limitation of forming a coordination complex between a transition metal and a polydentate compound. Neither JP '547 nor Takagishi teach such a limitation.

As noted above, JP '547 is directed to a deodorant that comprises a silicic acid gel structure containing a metal salt. JP '547 indicates that bentonite and a complex of isobutene-maleic anhydride copolymer and polyethyleneimine may be added to the gel. The Final Office Action alleges that "it is the Examiner's position that PEI will complex with the metal ions in the absence of evidence to the contrary." Appellants respectfully disagree. First, JP '547 indicates that a **complex** of isobutene-maleic anhydride copolymer and polyethyleneimine may be added to the gel after formation. There is no indication in JP '547 that the polyethyleneimine in the isobutene-maleic anhydride/PEI complex would contain any available ligands in order to additionally complex with metal ions. Second, even **if** the polyethyleneimine contained ligands available to complex with free metal ions, it can not be said that the "PEI will complex with the metal ions" as the isobutene-maleic anhydride/PEI complex is added to the gel after the formation of the silicic acid gels which "enclose" the metal salts.

In response to the first argument, the Final Office Action points to Appellants' specification at pg. 25, lines 14 and 15 that states, "The PEI-metal complexes (copper,

iron (III), and zinc) were prepared by simply dissolving the corresponding metal salts in the PEI solution.” Based on this, the Examiner concludes:

So, all that is required to make these complexes is to have the two ingredients in the presence of one another. The primary reference has both of these ingredients in the presence of one another. Since the reaction to form the complex is so simple then the Examiner can only reasonably conclude that when a metal ion contacts PEI a coordination complex is formed.

First, Appellants certainly do not disclose that simply “hav(ing) the two ingredients in the presence of one another” is enough to generate the claimed complex. Applicants go on to describe the preparation of the PEI-Ag complex including slow addition of PEI and 24 hours of stirring in addition to incorporating the procedure as described in WO 02/30204. Second, the Office Action has failed to even respond to Appellants’ actual argument. As disclosed by JP ‘547, a **COMPLEX** of isobutene-maleic anhydride copolymer and polyethyleneimine is added to the gel after formation. Thus, the polyethyleneimine is already complexed. There is no disclosure or suggestion in JP ‘547 that the isobutene-maleic anhydride copolymer/polyethyleneimine complex is “partially” complexed in order to have polyethyleneimine ligands remaining available in order for the polyethyleneimine component to **additionally** complex with metal ions.

In response to Appellants’ second argument, the Office Action states:

there is nothing to suggest that water soluble liquid PEI would not mix into the aqueous gel and come into contact with metal salts dissolved therein. Thus the Examiner has provided clear articulated reasoning with sound chemical rationale in contrast to Applicants assertions without proof.

Appellants respectfully disagree. JP ‘547 discloses in the “Abstract” that “a silicic acid gel structure (contains) the metal salt(s).” Furthermore, JP ‘547 discloses in the “Use/Advantage” section that “since the metal salts are enclosed in the vitreous

structure of the silicic acid gels, the deodorants are safe even when they touch directly human beings and animal.” Use of this language, particularly “enclosed” and “vitreous structure” seemingly would be contrary to the Examiner’s assertion that the PEI would mix into the gel and come in contact with the metal salts. For instance, one skilled in the art appreciates that vitreous is synonymous with “glassy” or “glass-like.”

Furthermore, one skilled in the art also appreciates that “vitreous silica” is a chemically stable and refractory glass made from silica. Thus, these disclosures combined with the teaching that the compound is “safe” even when touched directly by humans or animals because the metal salts are enclosed tends to discount the stance that “there is nothing to suggest that water soluble liquid PEI would not mix into the aqueous gel and come into contact with metal salts dissolved therein.” On the contrary, there appears to be nothing to suggest the opposite. JP ‘547 contains no disclosure whatsoever of a coordination complex formed between transition metals and a polyalkylimine as claimed by Appellants.

2. JP ‘547 and Takagishi fail to teach contacting the coordination complex with an odorous compound so that the one or more active sites of the transition metal capture the odorous compound.

To establish a *prima facie* case of obviousness, in addition to other requirements, the prior art references when combined must teach or suggest all the claim limitations. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). As noted above, independent claim 1 contains the limitation of contacting the coordination complex with an odorous compound so that the one or more active sites of the transition metal capture the odorous compound. Neither JP ‘547 nor Takagishi teach such a limitation.

As noted above, JP '547 discloses that "(s)ince the metal salts are enclosed in the vitreous structure of the silicic acid gels, the deodorants are safe even when they touch directly human beings and animal(s)." As the metal salts are enclosed in the silicic acid gels in order to remain safe to the touch for consumer use, one skilled in the art appreciates that any PEI-metal ion complexes² would be inhibited from contact with an odorous compound as claimed by Appellants. At the very least, it can not be said that odorous compounds would *necessarily* contact PEI-metal ion complexes. As there is no explicit disclosure of contacting a polyalkylimine-transition metal coordination complex with an odorous compound in JP '547, presumably the Examiner considers the limitation inherent. As such, Appellants note that to establish inherency, the evidence must make clear that the missing descriptive matter is **necessarily present** in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. The mere fact that a certain thing *may* occur or be present in the reference is not sufficient. *In re Robertson*, 169 F.3d 743, 745, 49 U.S.P.Q.2d 1949, 1950-51 (Fed. Cir. 1999) (citations omitted); *In re Rijckaert*, 9 F.3d 1531, 1534, 28 U.S.P.Q.2d 1955, 1957 (Fed. Cir. 1993). Simply stated, inherency may not be established by probabilities or possibilities.

3. The Examiner improperly combines JP '547 with Takagishi.

In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the Examiner to establish a factual basis to support the legal conclusion of obviousness. See In re Fine, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). "[T]he examiner bears the initial burden, on review of the prior art or on any other ground, of presenting a prima facie case of

² As noted above Appellants assert that JP '547 includes no explicit or inherent disclosure of formation of PEI-metal ion complexes.

unpatentability.” In re Oetiker, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). Furthermore, “there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” KSR Int’l Co. v. Teleflex Inc., 127 S. Ct. 1727 (2007) (quoting In re Kahn, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006)). Accordingly, even if all elements of a claim are disclosed in various prior art references, “rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” Id. Additionally, “[a] factfinder should be aware, of course, of the distortion caused by hindsight bias and must be cautious of argument reliant upon ex post reasoning.” Id.

Appellants submit that one skilled in the art “having common sense” would simply not have reasonably considered combining JP ‘547 with Takagishi in the manner described in the Final Office Action. As noted above, Takagishi is directed to adsorbing metal ions in water utilizing PEI. As disclosed in Takagishi, the PEI is crosslinked to make the polymer insoluble in water. This allows the PEI to adsorb metal ions out of solution. In stark contrast, in the present application, the PEI is complexed with the metal ions and crosslinked to, for instance, “enhance its adherence to the surface of a substrate when contacted with water.” Pg. 11, lines 21-23. Thus, Appellants seek to enhance adherence of the complex to, for example, a substrate while Takagishi seeks to utilize PEI to remove metal ions from water, crosslink the PEI and remove the PEI and metal ions from solution (due to insolubility).

Applicants respectfully submit that one of ordinary skill in the art would not look to the disclosure of Takagishi that teaches adsorbing metal ions in aqueous solutions and

combine with the isobutene-maleic anhydride/PEI complex of JP '547 in order to somehow crosslink the PEI section of the isobutene-maleic anhydride/PEI complex in an attempt to somehow yield Appellants claimed invention. Appellants note that it is improper to simply pick and choose just those components needed from a prior art reference to combine in a Section 103 combination. Only with Applicants' specification could the structure of Applicants' claimed invention be attained, and any attempt to arrive at the structure of the claimed invention through study of the cited references is only reachable from improper hindsight analysis after viewing Applicants' own specification.

In response to this argument, the Examiner disagrees and simply states "Applicant has not discovered crosslinking PEI. Chemical crosslinking is well known in the art." However, Appellants do not assert to have "discovered crosslinking PEI." Applicants assert to have discovered what is claimed, as a whole. Indeed, "in determining the differences between the prior art and the claims, the question under 35 U.S.C. § 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious." MPEP § 2141.02(I.) (emphasis in original). Thus, while crosslinking of PEI is indeed disclosed in the prior art, the process, purpose, and function as described by Takagishi is wholly unrelated to Appellants disclosed and claimed invention. Appellants respectfully submit that when the references are viewed in their entirety, one skilled in the art utilizing common sense would not be led to Applicants' claimed invention.

B. Independent claim 22 is patentable over JP '547 in view of Takagishi.

Independent claim 22 recites:

A method for reducing odor, said method comprising:
forming a coordination complex between a transition metal and a polyalkylimine, said transition metal being selected from the group consisting of scandium, titanium, vanadium, chromium, manganese, iron, cobalt, nickel, copper, zinc, silver, gold, and combinations thereof;
crosslinking said polyalkylimine, wherein said crosslinking renders said polyalkylimine substantially water-insoluble;
applying said coordination complex to a substrate that comprises cellulosic fibers; and
contacting said substrate with an odorous compound so that the one or more active sites of the transition metal capture the odorous compound.

1. **JP '547 and Takagishi fail to teach forming a coordination complex between a transition metal and a polyalkylimine compound.**

Appellants incorporate their arguments in subheading I.A.1. here.

2. **JP '547 and Takagishi fail to teach contacting the substrate with an odorous compound so that the one or more active sites of the transition metal capture the odorous compound.**

Appellants incorporate their arguments in subheading I.A.2. here.

In addition, Appellants note that neither JP '547 nor Takagishi disclose or suggest applying the coordination complex to a substrate that comprises cellulosic fibers. If the Examiner purports to additionally combine JP '547 and Takagishi with Stoddart (which is not asserted in the Final Office Action regarding claim 22), Appellants submit that such a combination is improper for the reasons noted in the following section.

3. The Examiner improperly combines JP '547 with Takagishi and potentially Stoddart.

Appellants incorporate their arguments in subheading I.A.3. here.

Additionally, as noted above, Stoddart was not explicitly utilized in the Office Action to reject claim 22. However, the Examiner utilized the teachings of Stoddart in rejecting various dependent claims drawn to specific substrates (claims 17-20 and 25). Appellants respectfully submit that one skilled in the art would not combine the teachings of Stoddart with JP '547 and Takagishi in the manner suggested in the Final Office Action as Takagishi is directed to crosslinking PEI-metal ion compounds in order to make them water insoluble to remove from solution. In contrast, as disclosed by Appellants, the PEI is complexed with the metal ions and crosslinked to, for instance, "enhance its adherence to the surface of a substrate when contacted with water." Pg. 11, lines 21-23. If the isobutene-maleic anhydride/PEI complex (which, as the Examiner asserts is also complexed with a metal) of JP '547 were to be somehow crosslinked utilizing the teaching of Takagishi, the incorporation of a cellulosic fiber substrate of Stoddart would defeat the purpose of the crosslinking in Takagishi in order to create separate phases of water and PEI-cupric ion.

C. Dependent claims 9-12 are patentable over JP '547 in view of Takagishi and further in view of Sebag.

Claim 9 depends from claim 1 and requires that a crosslinking agent facilitates the crosslinking of the polydentate compound. Claim 10 depends from claim 9 and requires that the crosslinking agent is selected from the group consisting of polyhydric alcohols, polyaziridines, epoxides, haloepoxies, polyaldehydes, polyisocyanates, and combinations thereof. Claim 11 depends from claim 10 and requires that the

crosslinking agent is an epoxy that contains at least two epoxide groups. Claim 12 depends from claim 10 and requires that the crosslinking agent is epichlorohydrin.

The Final Office Action cites Sebag as disclosing the step of utilizing a crosslinking agent such as epichlorohydrin (claim 12) to facilitate the crosslinking of the polydentate compound. Appellants respectfully disagree. Sebag is directed to a deodorant. The compounds disclosed in Sebag are salts of polyanionic polyamides.

First, the Final Office Action points to col. 2, lines 37-42³ as disclosing Appellants' polyalkylimine required by both independent claims 1 and 22. Applicants respectfully disagree. As Sebag notes:

The compounds of the invention **can easily be prepared** by a known type of condensation process, **by reacting an acid anhydride . . . with a cationic polymer** or oligomer . . . the cationic polymers or resins which can be used . . . (include) polyethyleneimines. Col. 2, lines 22-42 (emphasis added).⁴

Thus, the cursory mention of a polyalkylimine is simply as an intermediate compound to a final product (polyanionic polyamide).

Second, even if Sebag disclosed a product that included a polyalkylimine, as claimed by Appellants, Appellants submit that Sebag does not disclose crosslinking the polyalkylimine as the Office Action alleges. The Office Action points to col. 3, lines 25-30 as disclosing crosslinking a polyalkylimine. On the contrary, Sebag discloses that "crosslinking of the **polyamino-polyamide** is effected with a crosslinking agent." Col. 3, lines 26-27 (emphasis added). Sebag does not disclose crosslinking a polyalkylimine. Furthermore, "the polyamino-polyamide . . . is prepared by the polycondensation of an

³ The Office Action states Col. 4, lines 37-42, but Appellants believe the Examiner intends to point to Col. 2, lines 37-42.

⁴ The Office Action also points to Table I as disclosing a polyethyleneimine. See, also, Col. 8, lines 25-26 stating "Table I below indicates the **reactants** used in Examples 1 to 7." (emphasis added).

acidic compound on a polyamine.” Col. 3, lines 7-9. Additionally, col. 3, lines 9-25 denotes what group the acidic compound is selected from and what group the polyamine is selected from. Sebag does not disclose a polyalkylimine as a part of either of these groups.

In response to these arguments, the Office Action first states, “one cannot show nonobviousness by attacking references individually where the references are based on combinations of the references.” While Appellants agree that this is a proper statement of the law, such a conclusion does not apply here. Appellants have simply argued that Sebag fails to disclose the exact limitations that the Office Action cites the reference as disclosing (i.e., the limitations of claims 9-12). Appellants note that in order to establish *prima facie* obviousness, all of the claimed limitations must be taught or suggested in the prior art. See, e.g., In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991); MPEP § 2143.03.

Additionally, the Final Office Action states:

Applicant asserts on the one hand that Sebag et al. do not disclose crosslinking a polyalkylamine but on the other hand acknowledges that the polyamino-polyamides Sebag et al. include polyethyleneimines in the structure and these structures are crosslinked. This is confusing because the statements seem to contradict each other. Applicant and the Examiner appear to both agree that PEI is in the end structure and thus a polyalkylamine is in the end structure which is then crosslinked.

Upon review, Appellants believe their arguments above are clear and Appellants do not argue what the Examiner states. To briefly recap, Appellants respectfully assert that first, the only disclosure of a polyalkylimine is as an intermediate reactant with an acid anhydride to produce “compounds of the invention.” Second, claim 9 requires “wherein a crosslinking agent facilitates said crosslinking of said **polydentate**

compound.” In contrast, Sebag discloses that “crosslinking of the **polyamino-polyamide** is affected with a crosslinking agent.” Col. 3, lines 26-27 (emphasis added). Sebag does not disclose crosslinking a polyalkylimine. Regarding the Office Action’s assertion that “Sebag et al. include polyethyleneimines in the structure and these structures are crosslinked,” Applicants submit that it is common knowledge to one skilled in the art that the product of a polycondensation reaction does not yield simply the structure of some hybrid combination of the individual reactants. Polycondensation reactions require the loss of small molecules and compounds (usually water) in the formation of completely new compounds. One skilled in the art appreciates that a polycondensation reaction that includes a polyethyleneimine as a reactant does not produce a compound that “includes polyethyleneimine” in the structure as alleged by the Office Action.

D. Dependent claims 13-16 and 26-28 are patentable over JP ‘547 in view of Takagishi and further in view of Connolly.

Claim 13 depends from independent claim 1 and requires that the method “further comprises combining high-surface area particles with said transition metal and said polydentate compound, said particles acting as a carrier for said coordination complex.” Claim 14 depends from claim 13 and requires the particles are formed from silica, alumina, or combinations thereof. Claim 15 depends from claim 13 and requires that the particles have an average size of less than about 100 nanometers and a surface area from about 50 to about 1000 square meters per gram. Claim 16 depends from claim 13 and requires that the particles have a negative zeta potential.

Claims 26-28 depend from independent claim 22 and contain similar limitations to those of claims 13-15.

The Final Office Action cites Connolly as disclosing utilizing high surface area particles (such as those having a size less than about 100 nanometers and a surface area of from about 50 to about 1000 square meters per gram (claims 16 and 28)) as a carrier for the coordination complex. Connolly is directed to adsorbent agglomerates of zeoliteic molecular sieves bonded with silica particles.

First, Appellants respectfully submit that the silica particles of Connolly do not serve as a "carrier" as claimed by Appellants. The silica particles of Connolly are utilized as an adhesive, or bonding agent. As noted in Connolly,

preferably highly siliceous molecular sieve agglomerates, having nominal diameters within the range of about 40 to 800 micrometers, preferably from 100 to 600 micrometers, which are **bonded** with a **bonding agent** consisting essentially of amorphous silica particles having nominal silica particle diameters of from about 5 to 20 nanometers. Col. 2, lines 57-63 (emphasis added).

Thus, the silica particles of Connolly merely serve as a bonding agent to bond together the much larger molecular sieve agglomerate particles. In stark contrast, Applicants disclose and claim high surface area particles that act as a carrier for the complex. For instance, the complex may be present on the surface of the high surface area particles.

Second, as correctly noted in the Final Office Action, JP '547 "does not expressly teach a method for reducing odor further comprising combining high surface area particles have an average size of less than about 100 nm and a surface area of from about 50 to about 1000 square meters per gram and have a negative zeta." However, the Examiner goes on to allege, "it would have been obvious . . . to use the particles taught by Connelly et al. in the method of (JP '547).” Further, the Final Office Action states that one of ordinary skill in the art would be so motivated "because the (JP '547) provides the basic concept of using high surface area particles (silicates/bentonite) . . ."

Applicants respectfully disagree. As correctly noted in the Final Office Action, JP '547 does not disclose high surface area particles. The mere disclosure of silicate and bentonite does not disclose or suggest "high surface area particles" as disclosed and claimed by Applicants. Indeed, there is no teaching in JP '547 that the silicates or bentonite disclosed may be "high surface area" or have a surface area of from about 50 to about 1000 square meters per gram (claims 15 and 28). As such, one of ordinary skill in the art would simply not look to the disclosure of Connolly and select the **binder** of Connolly and somehow substitute this binder for the silicates or bentonite (which is not taught to be comprising "high surface area") of JP '547.

Plainly, the only incentive or motivation for so modifying JP '547 using the teachings of Connolly in the manner suggested in the Final Office Action results from using Appellants' disclosure as a blueprint to reconstruct the claimed invention out of isolated teachings in the prior art, which is improper under 35 U.S.C. § 103. Accordingly, it is respectfully submitted that any such modification of the cited references relies on the impermissible use of hindsight, which cannot be successfully used to support a *prima facie* case of obviousness.

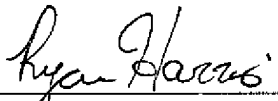
The Final Office Action attempts to respond to the above arguments again noting that "one cannot show nonobviousness by attacking the references individually" Again, however, Appellants' assert that the entire limitation for which the Final Office Action relies on Connolly is missing from the disclosure of the reference. Applicants note that in order to establish *prima facie* obviousness, all of the claimed limitations must be taught or suggested in the prior art. See, e.g., In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991); MPEP § 2143.03. For instance, Connolly is cited as

allegedly disclosing the limitations of claims 13 and 26 that require high surface area particles that act as a carrier for the complex. Appellants firstly noted above that Connolly does not disclose high surface area particles that act as a carrier. Appellants secondly noted that the Examiner's statement that "it would have been obvious . . . to use the particles taught by Connolly et al. in the method of (JP '547)" was improper. Applicants respectfully have not "attacked" the references individually as alleged.

In conclusion, Appellants request favorable action and allowance of the presently pending claims.

Respectfully requested,

DORITY & MANNING, P.A.



Ryan P. Harris
Registration No. 58,662
P.O. Box 1449
Greenville, SC 29602-1449
Phone: (864) 271-1592
Facsimile: (864) 233-7342

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8. CLAIMS APPENDIX

1. (Rejected) A method for reducing odor, said method comprising:
forming a coordination complex between a transition metal and a polydentate compound wherein said polydentate compound is a polyalkylimine;
crosslinking said polydentate compound, wherein said crosslinking renders said polydentate compound substantially water-insoluble; and
contacting said coordination complex with an odorous compound so that the one or more active sites of the transition metal capture the odorous compound.
2. (Rejected) A method as defined in claim 1, wherein said transition metal is selected from the group consisting of scandium, titanium, vanadium, chromium, manganese, iron, cobalt, nickel, copper, zinc, silver, gold, and combinations thereof.
3. (Canceled)
4. (Rejected) A method as defined in claim 1, wherein said polydentate compound contains positively charged ligands.
5. (Rejected) A method as defined in claim 1, wherein said polydentate compound contains one or more primary amines, secondary amines, tertiary amines, or combinations thereof.
6. (Canceled)
7. (Rejected) A method as defined in claim 1, wherein said polydentate compound is polyethyleneimine, polypropyleneimine, or a dendrimer thereof.
8. (Canceled)
9. (Rejected) A method as defined in claim 1, wherein a crosslinking agent facilitates said crosslinking of said polydentate compound.

10. (Rejected) A method as defined in claim 9, wherein said crosslinking agent is selected from the group consisting of polyhydric alcohols, polyaziridines, epoxies, haloepoxies, polyaldehydes, polyisocyanates, and combinations thereof.

11. (Rejected) A method as defined in claim 10, wherein said crosslinking agent is an epoxy that contains at least two epoxide groups.

12. (Rejected) A method as defined in claim 10, wherein said crosslinking agent is epichlorohydrin.

13. (Rejected) A method as defined in claim 1, further comprising combining high-surface area particles with said transition metal and said polydentate compound, said particles acting as a carrier for said coordination complex.

14. (Rejected) A method as defined in claim 13, wherein said particles are formed from silica, alumina, or combinations thereof.

15. (Rejected) A method as defined in claim 13, wherein said particles have an average size of less than about 100 nanometers and a surface area of from about 50 to about 1000 square meters per gram.

16. (Rejected) A method as defined in claim 13, wherein said particles have a negative zeta potential.

17. (Rejected) A method as defined in claim 1, further comprising applying said coordination complex to a substrate.

18. (Rejected) A method as defined in claim 17, wherein said substrate comprises a nonwoven, woven, or paper web.

19. (Rejected) A method as defined in claim 17, wherein said substrate comprises cellulosic fibers.

20. (Rejected) A method as defined in claim 19, wherein said coordination complex is chemically grafted to one or more molecules present on said substrate.

21. (Rejected) A method as defined in claim 1, wherein said odorous compound is selected from the group consisting of mercaptans, ammonia, amines, sulfides, ketones, carboxylic acids, aldehydes, terpenoids, hexanol, heptanal, pyridine, and combinations thereof.

22. (Rejected) A method for reducing odor, said method comprising:
forming a coordination complex between a transition metal and a polyalkylimine, said transition metal being selected from the group consisting of scandium, titanium, vanadium, chromium, manganese, iron, cobalt, nickel, copper, zinc, silver, gold, and combinations thereof;
crosslinking said polyalkylimine, wherein said crosslinking renders said polyalkylimine substantially water-insoluble;
applying said coordination complex to a substrate that comprises cellulosic fibers; and
contacting said substrate with an odorous compound so that the one or more active sites of the transition metal capture the odorous compound.

23. (Rejected) A method as defined in claim 22, wherein said polyalkylimine is polyethyleneimine, polypropyleneimine, or a dendrimer thereof.

24. (Canceled)

25. (Rejected) A method as defined in claim 22, wherein said coordination complex is chemically grafted to one or more molecules present on said cellulosic fibers.

26. (Rejected) A method as defined in claim 22, further comprising combining high-surface area particles with said transition metal and said polyalkylimine, said particles acting as a carrier for said coordination complex.

27. (Rejected) A method as defined in claim 26, wherein said particles are formed from silica, alumina, or combinations thereof.

28. (Rejected) A method as defined in claim 26, wherein said particles have an average size of less than about 100 nanometers and a surface area of from about 50 to about 1000 square meters per gram.

29. (Rejected) A method as defined in claim 22, wherein said odorous compound is selected from the group consisting of mercaptans, ammonia, amines, sulfides, ketones, carboxylic acids, aldehydes, terpenoids, hexanol, heptanal, pyridine, and combinations thereof.

30. (Rejected) A method as defined in claim 22, wherein said polyalkylimine contains positively charged ligands.

31-60. (Canceled)

9. EVIDENCE APPENDIX

None

10. RELATED PROCEEDINGS APPENDIX

None